AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Currently Amended) A cryogenic chamber comprising an outer vacuum vessel [[(9)]], an inner cryogen vessel [[(11)]], a turret [[(40)]] housing a neck tube [[(8)]] itself providing external access to the inner cryogen vessel [[(11)]], and a pulse tube refrigerator [[(20)]] itself comprising at least one pulse tube and at least one regenerator tube, wherein the pulse tube refrigerator is located within a vacuum contained between the outer vacuum vessel [[(9)]] and the inner cryogen vessel [[(11)]] and the pulse tube refrigerator [[(20)]] and the neck tube [[(8)]] share a single turret ~~(40), characterized~~ characterized in that the cooling stage(s) [[(6, 7)]] of the pulse tube refrigerator [[(20)]] is/are rigidly mechanically connected to the neck tube [[(8)]] by highly conductive thermal links, the pulse tube(s) and regenerator tube(s) being displaced away from the neck tube and from each other.

Claim 2. (Currently Amended) A prefabricated assembly [[(50)]] for incorporation into a cryogenic chamber, comprising a neck tube [[(8)]] and a pulse tube refrigerator [[(20)]] itself comprising at least one pulse tube and at least one regenerator tube, ~~characterized~~ characterized in that the cooling stage(s) [[(6, 7)]] of the pulse tube refrigerator [[(20)]] is/are rigidly mechanically connected to the neck tube [[(8)]] by highly conductive thermal links, the pulse

tube(s) and regenerator tube(s) being displaced away from the neck tube and from each other.

Claim 3. (Currently Amended) An assembly according to claim 2, wherein the neck tube [[(8)]] is thermally connected to all three of the following points:

[[-]] to the high temperature end [[(1)]] of the pulse tubes;

[[-]] to low temperature end [[(6)]] of the first pulse tube; and

[[-]] to the second stage pulse tube and the inner cryogen vessel [[(11)]].

Claim 4. (Currently Amended) An assembly according to claim 3, wherein at each of the three points, a permanent highly thermally conductive link ~~(1, 6, 7)~~ is provided between the neck tube [[(8)]] and the relevant point.

Claim 5. (Currently Amended) An assembly according to ~~any of claims 2-4,~~ claim 2, wherein the links ~~(1, 6, 7)~~ form parts of the cooling stages of the refrigerator.

Claim 6. (Currently Amended) An assembly according to claim 5 wherein the links ~~(1, 6, 7)~~ made of copper.

Claim 7. (Currently Amended) An assembly according to ~~any of claims 2-6,~~ claim 2, wherein the diameter of the neck tube [[(8)]] is reduced in size to a

size sufficient only to provide access for cryogen fill, current leads and other services, and to allow safe venting of cryogen in the case of a quench.

Claim 8. (Currently Amended) A cryogenic chamber or assembly according to ~~any preceding claim~~ claim 1, wherein the cooling stage(s) of the pulse tube refrigerator are rigidly mechanically connected to the neck tube by at least one of: welding; soldering; brazing and clamping.

Claim 9. (Currently Amended) A cryogenic chamber according to claim 1 ~~or claim 8~~, further comprising a radiation shield [[(10)]] interposed between the outer vacuum vessel [[(9)]] and the inner cryogen vessel [[(11)]].

Claim 10. (Currently Amended) A cryogenic chamber according to claim 9 wherein the cooling stage(s) of the pulse tube refrigerator [[(20)]] are connected to the inner cryogen vessel [[(11)]] and the radiation shield [[(10)]] by the highly conductive thermal links [[(6, 7)]].

Claim 11. (Currently Amended) A cryogenic chamber according to claim 9 ~~or any claim dependent on claim 9~~, wherein the pulse tube refrigerator [[(20)]] is a two-stage refrigerator; a high temperature end [[(1)]] of a first stage pulse tube [[(2)]] is connected to the outer vacuum vessel [[(9)]]; the low temperature end [[(6)]] of the first stage pulse tube [[(2)]] is connected to the radiation shield [[(10)]]; and a first stage regenerator tube [[(3)]] is connected between the outer vessel [[(9)]] and the radiation shield [[(10)]].

Claim 12. (Currently Amended) A cryogenic chamber according to claim 11 wherein a high temperature end [[(1)]] of a second stage pulse tube [[(5)]] is connected to the outer vacuum vessel [[(9)]]; a low temperature end [[(7)]] of the second stage pulse tube [[(5)]] is connected to the inner cryogen vessel [[(11)]]; and a second stage regenerator tube [[(4)]] is connected between the radiation shield [[(10)]] at the first low temperature end [[(6)]] and the inner cryogen vessel [[(11)]] at the second low temperature end [[(7)]].

Claim 13. (Currently Amended) A cryogenic chamber according to claim 9 ~~or any claim dependent on claim 9~~, wherein the neck tube [[(8)]] is thermally connected to all three of the following points:

[[-]] to the outer vacuum vessel [[(9)]] and the high temperature end [[(1)]] of the pulse tubes;

[[-]] to the radiation shield [[(10)]] and the low temperature end [[(6)]] of the first pulse tube; and

[[-]] to the low temperature end [[(7)]] of the second stage pulse tube and the inner cryogen vessel [[(11)]].

Claim 14. (Currently Amended) A cryogenic chamber according to claim 13, wherein at each of the three points, a permanent highly thermally conductive link ~~(1, 6, 7)~~ is provided between the neck tube [[(8)]] and the relevant point.

Claim 15. (Currently Amended) A cryogenic chamber according to claim 1 ~~or any claim dependent on claim 1~~, wherein the links ~~(1, 6, 7)~~ form parts of the cooling stages of the refrigerator.

Claim 16. (Currently Amended) A cryogenic chamber according claim 15 wherein the links ~~(1, 6, 7)~~ are made of copper.

Claim 17. (Currently Amended) A cryogenic chamber according to claim 1 ~~or any claim dependent on claim 1~~, wherein the diameter of the neck tube [[(8)]] is reduced in size to a size sufficient only to provide access for cryogen fill, current leads and other services, and to allow safe venting of cryogen in the case of a quench.

Claim 18. (Currently Amended) A cryogenic chamber according to claim 12 ~~or any claim dependent on claim 12~~, wherein the second cold end [[(7)]] is part of the cryogen vessel [[(11)]], and a lower part of the neck tube [[(8)]] is used as a second stage liquefaction surface.

Claim 19. (Canceled)